INFLUENCE OF THE ADRIATIC TRANSPORT CORRIDOR ON THE SUSTAINABLE DEVELOPMENT OF THE CROATIAN ECONOMY

ABSTRACT

Powerful interaction processes of market globalization and liberalization influence considerably on the world flow of goods, thus directly affecting the transport system, generating economic and transport growth. Maritime transport, as the cheapest segment of transport, is becoming the most important instrument of the globalization process, considering total transported goods amount and value.

This article represents an overview of preliminary outcomes from ongoing research, resulting in the Adriatic Transport Corridor concept as a significant part of the intermodal transport corridor Baltic-Adriatic. Authors’ research is directed towards defining strategic guidelines for the integration of intermodal transport system comparative advantages, important environment protection potentials and coordination with European transport network organizational concepts and achieving sustainable growth as the most important strategic challenge for Croatia. Owing to its compatibility with the environment, maritime transport is the least harmful to climate, thus gaining importance in the European intermodal transport system with a bright future ahead.

Key words: intermodal transport, corridor Baltic-Adriatic, concept of the Adriatic Transport Corridor, sustainable economic growth, environmental aspects

1. INTRODUCTION

The phenomenon of market globalization and liberalization has a significant influence on the formation of the world flow of goods, and thus on the transport system. Transport systems in the region are unevenly developed. EU member countries have the most developed transport system, with the road transport being the most dominant in all countries. In addition, there is a difference between the industry and development of national economies of surrounding countries, their national policies, strategies and guidelines for planning infrastructural capital investments. Specialization in production, volume economy and competition, as basic market features, have an extremely important function of continuous transport development as a process. The development of the transport system directly interacts with the development of economy; therefore, it directly conditions the economic growth and an enviable level of local, national and international mobility, and in the end, increase of the quality of life. The need for sustainable growth and environment protection, as well as the development of traffic safety, ensuring energy supply and finding and applying
alternative sources of energy are particularly emphasized as important goals of sustainable growth.

There is without doubt a strong interactive influence of the transport system and globalization, especially maritime transport and globalization, as a developed transport system presupposes the integrity of the global market, so it is precisely the process of globalization and liberalization that has a positive influence in the decrease of transport costs by sea. More than 65% of the total international transport of goods takes place by sea, therefore the significance of the flow of goods by sea for the transport and economic growth on the global, regional and local level is thus greater. The intensity, structure and dynamics of the flow of goods by sea in the context of world transport are relevant indicators of the concentration of European transport and the tendencies of its economization. In contrast to the competitive road transport, transport system is trying to contribute to the implementation of efficient integrated system of intermodal transport by sea, rail and inland waterways by introducing a series of measures. The tendency of intermodal system is to reach such a level of organizational and financial simplicity and efficiency in the transport system that will make it a logical choice. Therefore, the value of results obtained through analysis of the mentioned indicators of the movement of goods, both by sea and by land, shows the purposefulness of their monitoring.

In the framework of thus determined scientific problem, the subject of research in this paper is to diagnose, on scientific basis, the current transport development possibilities in Croatia within the EU transport network, especially when it comes to intermodal transport, and the forecast of sea and overland flow of goods as important accelerators of European and Croatian transport and economic growth.

The goal of the research is to define the basic characteristics of the Croatian transport system development, maritime flow of goods on the Adriatic considering: the connection of Scandinavian countries to the European transport system and economy, or the possibility of direct land connection with the Adriatic; ecological aspects and significance of the Baltic-Adriatic corridor and intermodal transport in the world trade; development of the Adriatic ports, especially the port of Rijeka and transport infrastructure of Croatia, the leading region of maritime transport; the cargo structure in maritime transport and global changes in the world economy which reflect upon the global changes in the EU economy and Croatian economy.

2. DIRECT MULTIMODAL CORRIDOR BALTIC-ADRIATIC AS AN IMPORTANT STRATEGIC RESOURCE

The areas along the Baltic and the Adriatic have significant geographical, historical, economic and transport similarities. Recently, the intensification of economic growth and the dynamics of the flow of goods between the Central European zone and pre-Asia areas, that is the zone between the north and the south of Europe, has enabled a more progressive growth trend of both zones [2]. The development of multimodal transport network and its connection with the TEN-T\(^1\) corridors (Picture 1.) in the overland transport sectors (road and rail), inland waterways, sea ports and airports, represents a precondition for strengthening national economies.
Profiling a direct multimodal corridor Baltic-Adriatic connects the north and the south of Europe, with a more progressive intensification of the economic growth of Baltic and Central European countries. Reviving the flow of goods dynamics and the trend of development of port and rail transport within and between the Baltic and the Adriatic basin creates a prerequisite for land transport connection of all countries from the Baltic to the Adriatic. Rail and road transport connection of the Baltic and the Adriatic establishes inter-relations with the existing corridors of the European transport network. The concept of the transport connection Baltic-Adriatic should reintegrate navigable ways of the Danube waters and the construction of the canal for connecting river basins. The construction of the canal from the Danube towards the Elbe, the Oder and the Vistula enables the navigation by river and river-sea vessels to all ports of the North Sea and the Baltic Sea. The construction of the canal Vukovar – Šamac and the regulation of the river Sava to Sisak and Zagreb, as well as the river Kupa to Brod na Kupi and Tunnel Channel to Bakar covers the shortest navigable connection of the Danube region to the Adriatic [3]. The Baltic was dubbed the Sea of Opportunity, and the Adriatic in the concept of the Ionian-Adriatic corridor has become an extremely significant strategic resource and economic challenge for the Republic of Croatia.

3. IDENTIFYING INTERMODAL TRANSPORT AS A STRATEGIC GOAL OF THE REPUBLIC OF CROATIA

Besides the pronounced potential in environment protection, intermodal transport system has the ability to generate and intensify the economically sustainable growth. Without doubt, there is a true need for economic growth and transport system in the Republic of Croatia, within which intermodal transport would have particular significance as a strategic program and certainly as one possible way of solving the economic crisis.

Strategic planning of the Croatian transport development must be in the service of the overall economic growth and dynamically adjusted to objective investment possibilities of the public sector, whereby the conceptual approach should not be nationally limited, but in the context of the development of the entire region.
3.1. EU Guidelines

As a part of the European Union development strategy, the European Commission has brought and adopted a series of long-term development plans and projects [4], extremely important for the development of Croatian economy. A large number of international projects and strategic documents relates to the research of the flow of goods, as well as transport and industrial routes. Essentially, these documents emphasize the key role of a sustainable transport system development in the context of the European transport policy and logistics, as an important component of the transport system, in ensuring a sustainable and competitive mobility in Europe [7].

The EU emphasizes the need for developing a transport network in Croatia in complete agreement with the development of the Trans-European network and the South-East Europe Core Regional Transport Network, and greets the treaty achieved between Croatia and the European Commission about the future (TEN-T) network in accordance with the Decision 1692/96/EC, as amended, and about the priority project of European interest within this TEN-T network, fulfilling the requirements proscribed for closing Chapter 21 of Croatian pre-accession negotiations for the entry into the EU membership, in the Joint Position of the European Union (CONF-HR 31/07).2 In that context, the European Commission adopted the Directive 2004/54/EC related to the Trans-European Road Network – TEN-T which has been obligatory for all EU members since 19 November 2011.

The European Commission designed the Freight Transport Logistics Action Plan3, whereby it determined the support for the development of intermodal transport as one of the main priorities of the European transport policy. In the context of that plan, the European Commission set out a frame and guidelines [7] which would ensure the modernization of European ports, and thus raise the level of competitiveness of maritime transport, attract investors and analyze progress in sustainable mobility development, and in that context, develop and stimulate competition of intermodal transport system.

Precisely for that reason, after signing the pre-accession agreement in the preparation process of the Croatian entry into the EU, defining the strategic guidelines for integrating comparative advantages of intermodal transport system, and coordinating the organizational concepts of the European transport network, Croatia has an opportunity to achieve a high level on the transport market and enable the integration of the Croatian transport system into the European transport network.

Realizing the intermodal transport system represents a strategic issue as intermodality is of essential importance for the development of a sustainable transport system. The basic goal of the intermodal transport system is the creation of competitive alternatives to road transport, reducing bottlenecks and jams on roadways, increasing the safety and protection in traffic, and especially reducing the negative influence of transport on the environment.

3.2. Intermodal Transport as the Generator of Transport and Economic Growth in the Republic of Croatia

The Republic of Croatia, geographically situated between the east and west Europe, as a country extremely oriented towards the sea, with an already well-built and developed road infrastructure and developed rail infrastructure, should intensify and integrate maritime traffic and inland waterways traffic into the sustainable Croatian transport system, which represents a precondition for the development of the transport system. Transport system, with all its subsystems, represents an important segment of economic growth. The goal of sustainable transport system growth, and intermodal transport as its important constituent, is the establishment of an efficient integrated system which could satisfy the needs of all
participants and which could generate a strong economic growth, with the condition of the safety and sustainability of environment.

The Croatian transport system should as soon as possible become an important and irreplaceable constituent part of trans-European intermodal transport network, from the aspect of possibilities of integration of the Croatian transport system and transport systems of neighboring countries. Thus, the east Adriatic coast systems will be included into the EU development programs. This especially concerns the parameters of intermodal maritime transport in the Republic of Croatia, established according to available transport resources and defined transport corridors. For the purpose of enhancing transport networks compatibility and competitiveness, as well as increasing the safety of traffic and environment protection, the integration of the intermodal sea and inland traffic in the European transport networks represents an important segment of the development of the Croatian economy. Another extremely important issue lies in the fact that the so called short sea shipping represents a major form of intermodal transport in Europe.

The development of an intermodal system, with the main center in the port of Rijeka and a transport-logistic center "Miklavlj" in Matulji near Rijeka, may lead to realization of significant strategic goals for the purpose of economic recovery, progress and possibility of solving the Croatian economic crisis. Possible strategic goals may be summarized as follows [13]:

1. Realizing >8,5 billion EUR of new foreign currency annual revenue,
2. Opening >90.000 of new productive working positions,
3. Reducing imports and increasing exports >35% in relation to the present,
4. BDP growth by 4.5 - 6% in relation to the present,
5. BDP growth >15.000 EUR per capita,
6. Increase of dry cargo traffic by 40 mil. tons per year until 2025,
7. Increasing the profit of the state budget and the budgets of local self-government units situated on the major transport routes >3.5 mrd. EUR per year,
8. Reducing the foreign debt and settlements of the due installments,
9. Various other economic effects.

4. CONCEPT OF THE ADRIATIC TRANSPORT CORRIDOR IN THE CONTEXT OF BALTIC-ADRIATIC CORRIDOR

4.1. Adriatic and Croatian Transport Corridor as the Center of EU Projects Interest

On the basis of implemented development projects in the area of international public transport, industry, energetics, economy, finances, IT and other, the European Union has redefined pan-European corridors and has given up from the strategy of connecting the North Sea and the Black Sea through the corridor North Sea-Rhine-Main-Danube-Black Sea, but has adopted a new one – Baltic-Adriatic. Insight and analysis of the database, using the most modern methods and technologies for economic effects assessment, the European Commission has conducted a research of the flow of goods and transport and industrial routes through international projects IMONODE, NADOK-X, ECO4LOG, INTERIM. The project Imonode [15] established strategic justifiability of north Adriatic ports, Rijeka, Koper, Trieste, integration into the system which would strengthen the European corridor V and directly introduced the junctions of Rijeka and Zagreb into that corridor. In that sense, it is necessary to construct a lowland double-track electrified railroad Rijeka-Koper-Trieste, the railroad from Rijeka over Pivka to Austria, and along the Adriatic coast from north Italian ports to Greek ports with branch lines towards Zagreb and Hungary (Rijeka-Zagreb-Botovo), all of that at the maximal above-sea level of 200 m. This modern railroad would connect
Croatia with the European railroad network, thus becoming a key factor for connecting the EU with the Adriatic-Mediterranean sea transport route, or over-seas areas of Africa and the Near and Far East - Asia. In addition, with this new rail, the EU would like to technologically integrate north Adriatic ports into a key intermodal center, which would strategically connect the EU and Asia [22]. For that reason, in March 2010, the ports of Trieste, Rijeka, Venice, Ravenna and Koper, jointly founded the North-Adriatic Ports Association (NAPA). The European Union evaluated the NAPA project “ITS Adriatic Multi-Port Gateway” as extremely significant for the potential of port infrastructures and European market services, granting the NAPA ports funds in the amount of € 1,442,500 at a European Union public tender for co-financing development projects in TEN-T fund (European Transport Network) (Picture 1.). Co-petitiveness (cooperation and competitiveness) will in the future favor the creation of a unique information platform, which would manage services directed towards Far East, as well as central and eastern European markets. The project will last 30 months, with the expected implementation period up to 30 June 2013. The expansion of port community system will also reflect on the Rijeka Port Authority, a member participating in the project as “Observer” until Croatia becomes an EU member [10]. NADOK-X project (North Adriatic Danube corridor-ten) has designed a transport infrastructure for traffic-industrial connection of the Adriatic with the trans-European corridors X and VII, for a modern transport of goods on the route Adriatic – Danube (central and eastern Europe). ECO4LOG project has designed logistic goods services in international public transport as a value added service or economic multiplicators bringing great benefits to countries where the flows of goods pass, and there are as many as 6 international transport corridors passing over the territory of Croatia [13]. INTERIM project has designed a modern intermodal transport system ensuring the participation of sea, rail and inland traffic with 85% share, the other 15% being road transport, in order to achieve the 3Es (Ecology, Energy and Economy) [10].

![Figure 2 - Corridors V and X, maritime Adriatic corridor](source: East Mediterranean Master Plan of the Motorways of the Sea, 2011, pg. 8-206 [5])

The EU adjusted its long-term development strategy and has adopted a new one, Baltic-Adriatic, with the Port of Rijeka as the principal intermodal center and the main transport route ensuring maximal satisfaction of EU strategic interests. As much as 90% of the EU foreign trade is directed over the sea, because of which the European Commission considers
that great cost-effectiveness might be achieved with a new and significantly shorter corridor passing through Croatia. Croatia should recognize and take advantage of this strategic interest of the EU as a fantastic opportunity for economic recovery and growth. European Commission’s evaluation that transport in the countries of this region (Croatia, Italy, Slovenia, etc.) will rise by 50% until 2020 speaks in favor of that. The fact that of about 700 million tons of cargo, which annually passes through the Suez Channel by ships, only 10% comes to the north-western Adriatic ports should not be neglected [19], although this transport corridor would reduce the cargo transport time by about five to seven days in relation to north European ports (Picture 3). Adriatic transport corridor has become the center of interest of both European and world shippers, who base their choice of this transport route on the transport costs reduction and decreasing navigation duration. As the basic advantage of its suitable geostrategic and geotraffic position, Croatia should use current trends of the shippers’ and the EU transport policies and ensure all the necessary transport logistics and capacities along the main land, sea and inland transport routes. Therefore, the need of investing into the transport infrastructure and transshipment capacities development in the Port of Rijeka and other Adriatic ports represents an obvious challenge to Croatia, in order to realize strategic national interests, along with the EU’s strategic interests in the long run.

In the context of a wider transport approach, or adopted trans-European (TEN-T) network program and Common Transport Policy5 program, the emphasis was put on considering environmental and safety aspects, transport routes management efficiency supported by the application of intelligent transport systems, as well as on interoperability of transport branches and forms of transport.

As a part of the EU’s TEN-T program, Cyprus, Greece, Italy, Malta and Slovenia conducted the Eastern European transport system development project and made a Master Plan with a detailed analyses and plans for necessary modifications and investments into infrastructure, with the Croatian ports being included into consideration.
This document will serve the European Commission to make development strategies and plan the related financial programs, stimulating investments and transport infrastructure development. As Croatia is not yet an EU member, it still cannot use the TEN-T program financial means. After the accession to the EU in July 2013, Croatia will have access to the financial means for the investment into sea and intermodal transport system on the Adriatic, whereby it will be possible to include Adriatic east coast transport systems into the EU development programs.

The European Commission expects Croatia to nominate its strategic transport projects to the Cohesion Funds, which should enable outright use of about €3.5 billion after Croatian full membership in the EU.

4.2. Rijeka – an Important Strategic Intermodal Logistic Center and Junction

During research in the INTERIM project, strategic partners (ten larger world investors) for investing capital into the main Croatian transport route through Rijeka, evaluated the results of transport demand research as realistic, which stimulated them to express their interest in concrete investment into concrete programs and projects, aware of the fact that a market of about 7.5 mil TEUs, or 70 mil tons of cargo, is assessed for the area of northern Adriatic until 2025, or about 4.5 mil TEUs or 42 mil tons of cargo through the principal terminals of Rijeka port and its hinterland.

All kinds and sized of vessels may sail into the Rijeka port, because as opposed from other north Adriatic ports in which the draught is limited to 14 m, it has unlimited draught, or the depth of the sea along the wharves without any need for additional construction of the so called port basins, as is the case in most EU ports. Owing to its existing infrastructural and port capacities and obviously good geographic and transport characteristics, Rijeka will become the main intermodal center, with the extension of Brajdica with a 50,000 square meter wharf and the construction of 330 meters long new coast with 14.5-meter draught and intensive continuation of construction and releasing into operation of the Principal Container Terminal Zagrebačko Pristanište, with an 18-meter draught and a 1200 meter wharf, whose capacity will amount to 3 mil TEUs annually. The favorable geographic position of the lowland railroad Rijeka-Zagreb-Botovo-central Europe, with the maximal level above the sea of 200 m, certainly contributes to the above mentioned, as opposed to the height above sea level of railroads in the hinterland of other north-Adriatic ports, which amounts to 800 m.
Transport-logistic center “Miklavlje” in Matulji is an excellent location with an overall area of 250 acres, which integrates public transport industrial functions of the ports of Rijeka, Koper and Trieste with an electrified two-track railroad, highway and state road. Besides that, the center “Miklavlje” enables the strategic partnership for the development of international public transport, as well as small and middle entrepreneurship in Croatia and neighboring countries. The possibility of direct integration of internal Croatian navigation into the developed internal navigation system of central European countries is also significant.

Rijeka Gateway project, or the Project of Rijeka Transport Route Restoration, is a complex development program with the goal of coordinating port operative demands with the urban part of the city area and transport connection of port area with international road and rail corridors. Rijeka Gateway (1 and 2) project, besides port modernization and restructuring (previously described construction of the container terminal “Brajdica” and the Principal Container Terminal), encompasses the construction of eastern part of Rijeka bypass from Orehovica to Križišće, connector roads Draga – Brajdica (D-404) and Čavle – Križišće, as well as the reconstruction of Krčki Bridge. Thus Rijeka obtained a good connection to the highway Rijeka – Zagreb – Budapest, which is a part of European transport corridors. The World Bank has a significant role in the realization of the Rijeka Gateway project by means of its loans RGP I and RGP II, granted in a few stages in the period between 2003 and 2009, financing the implementation of the project. Besides these projects, an overall development of the Port of Rijeka, as an intermodal center and junction, and the development of the Rijeka transport route6, and thus indirectly the economic growth of Croatia, requires some other strategic projects as well. This relates to the construction and design of logistic centers “Miklavlje” and “Škrljevo” and their connection by two-track railroad with the Principal Terminal and enabling the transport of containers between the wharves and logistic centers in the hinterland, to the construction of the IMONODE [24] railroad Trieste-Koper-Rijeka-Oštarije – further towards the south, and to the construction of the new container terminal on the island of Krk – Omišalj near JANAF, as well as the construction of the LNG terminal in Omišalj, the construction of a frigo-container terminal as the world junction of air-conditioned cargo, as required by the development of air cargo terminal in the existing Rijeka airport [13].

All of the above are key reasons owing to which the Republic of Croatia and the Port of Rijeka have true potential to become a strategic transport industrial corridor and an intermodal center of the European Union and great countries of Asia.

The significance of Rijeka transport route, or the significance of Rijeka port as an intermodal center and junction for Croatia and this part of the EU, reflects through the expected increase of port’s share in the Croatian GNP until 2020, when the share would amount to 12.7%, which is ten times greater than today [10]. On the level of Croatia, it is estimated that GNP would increase by 4.5-6% in relation to the current state.

5. ECOLOGICAL ASPECTS OF THE ADRIATIC TRANSPORT CORRIDOR IN THE CONTEXT OF THE CORRIDOR BALTIC-ADRIATIC

By intensifying industrial production and expenditure, the relation between environment and economy has become an obligatory component of sustainable growth. The share of maritime transport in the overall foreign trade of EU member states in 2007 amounted to 71.3%, which represents the value of trade of goods by sea amounting to 48.5% of the total value of the EU’s trade [6]. Analogously, by intensifying sea transport through the Adriatic, especially by establishing a strategic intermodal corridor of the European Union and great
countries of Asia, navigational burden of the Adriatic will constantly be on the increase, and therefore, all the efforts for its preservation represent a definite need for transport and environment interaction in the context of natural laws and the awareness of limited resources and absorption of the Adriatic area.

More than 7000 ships arrive into Croatian ports in international navigation per year, and an average of 7000 ships come to Adriatic ports annually, with about 30,000 ships which transport about 70 mil. tons of oil in the Adriatic, along with the other types of cargo per year. In view of all this, it is obvious that traffic through the Adriatic, especially in some areas, is extremely heavy. Navigational burden in the Adriatic is unstable in certain areas, while at every moment the radars in the Adriatic register from 250 to 300 ships, 50 of which are tankers (about 20%), and 10 – 20% ships report dangerous cargo to the AIS system [14].

The area of the Adriatic is an ecologically sensitive area with a large concentration of people, activities and interests, so environmental issues may appear suddenly and quickly reach their peak, while their recovery would represent a long-term process, which would require considerable financial means and would have a negative economic effect on the entire area and wider. Only with integrated instruments of spatial, environmental, economic and social planning, as well as suitable mechanisms of plan implementation and implementation control, can it be directed towards sustainable growth. The transport route represents a cleaner, more cost-effective solution for the transport of goods, which would reduce the emergence of bottlenecks on Croatian and European roads. The implementation of well-established and reliable sea route network in the Adriatic may have a more effective influence on the protection of the Adriatic environment. In order to neutralize the positive effects owing to the change in the type of transport, infrastructural interventions directed towards the navigable sea route should be planned with the goal of minimalizing the negative effects on the environment. For that purpose, infrastructural interventions included in port authorities’ developmental plans are subject to detail assessments of effects on the environment according to national and EU regulations.

In view of all that, a logical basic “task” suggests itself – preservation of ecological integrity of the Adriatic coastal area ecosystem, or preventing the devastation and degradation of ecological resources of the coastal and sea Adriatic area by application and implementation of an environment protection model, as well as planning and managing sustainable growth.

It is suggested to follow the Adriatic Environment Protection Model (currently developed by the authors), which will contain a strategic ecological assessment of the Adriatic navigable way (corridor) on the basis of the regulations defined by Annex I of the EU Directive 2001/42 about the assessment of effects of certain plans and programs on the environment. The suggested Model should identify the relevant aspects of the current environment condition in the Adriatic, ecological characteristics and main issues to be solved. Adriatic Environment Protection Model, containing suggestions of key technical-technological solution methods for sustainable growth, should strengthen the contribution of reducing acidification, eutrophication, endangering human health, climate change and ozone destruction as a consequence of pollution from ships in national and international navigation through the Adriatic.

6. CONCLUSION

Strategic planning of intermodal transport corridor development in the Adriatic and through Croatian overland route, as a part of the transport development in Croatia and the wider region, should be in the purpose of overall economic growth, dynamically adjusted to objective investment possibilities of the public sector, but also to the interest of foreign investors. Besides current financial means from pre-accession EU funds and world bank
credits from the European banks, after the accession into the EU in July 2013, Croatia will have access to the financial means for investing into sea and intermodal transport system in the Adriatic, which would enable the inclusion of Adriatic east coast transport systems into the EU development programs.

The need for investing into the development of transport infrastructure and transshipment capacities of the main intermodal center and junction in the Port of Rijeka, but also in other Adriatic ports, with the goal of long-term realization of strategic economic and transport national interests, parallel to satisfying the EU interests, is one of the most important state priorities.

Considering its potential, the current transport system in the region is insufficiently developed, characterized by individual countries and important ports’ development strategies. One of key solutions of their adequate development is the integration of activities, strategies and resources of the ports in the region, with their joint appearance on the market. For that strategic purpose, the ports Trieste, Rijeka, Venice, Ravenna and Koper have founded the North Adriatic Ports Association (NAPA). The European Union evaluated the NAPA project “ITS Adriatic Multi-Port Gateway” as extremely significant for the potential of port infrastructures and European market services, granting the NAPA ports finances in the amount of €1,442,500 at the public tender by the European Union for co-financing development projects in the TEN-T fund (European Transport Network).

Owing to comparative advantages, competitiveness and compatibility of the intermodal sea and inland waters transport system in integrated European transport networks, this transport system has a bright future ahead. The Republic of Croatia and the Port of Rijeka, geostrategically, geographically and traffically well-positioned, with all their natural resources and economic potentials, may become a strategic transport industrial corridor and intermodal center and junction between European Union and great countries of Asia.

A systematic approach to integrated management of intermodal transport corridor through the Adriatic will generate a dynamic process of sustainable management and utilization of sea and coastal areas, encompassing all relevant entities (social, economic and ecological relations) with an influence on the process itself, as well as interacting with one another, including all sea and coastal elements which form a part of it. The preservation of environmental integrity of the Adriatic coastal area ecosystem, or the prevention of devastation and degradation of ecological resources of the coastal and sea area of the Adriatic is particularly important, because the area of the Adriatic has limited resources and absorption. In that context, the ecological aspects of the transport corridor through the Adriatic implemented by the Adriatic Environment Protection Model, and the technical and technological innovative solutions predicted and suggested by the mentioned model, aim at realizing strategic economic development processes in Croatia, provided there is a significant contribution to the preservation of the irreplaceable spatial, economic, environmental and social resource of the Adriatic Sea and its coastal area as a natural privilege of the Republic of Croatia and its citizens.

ENDNOTES:

1 TEN-T development program of trans-European transport network
3 Freight transport logistic action – in 2007, the European Commission adopted a plan suggesting a series of measures with the goal of stimulating competitiveness of the intermodal transport system, raising the level of maritime transport competitiveness, creating a framework which would ensure the modernization of European ports, promoting transport
logistics and attracting investors, as well as analysis of sustainable mobility development progress.

4 Short Sea Shipping – term for the transport of cargo and passengers among European ports and nearby non-European ports. This transport uses waterways which partly include the sea or the ocean which is never completely crossed. Geographically, short sea shipping transport is applied on the area from Iceland, Scandinavia, and Baltic region over western Europe all the way to the Mediterranean, including north Africa and the Black Sea.

5 CTP – joint transport policies of the EU.

6 The traffic position of the Rijeka port on the Vb branch of pan-European corridor, connecting it into the European road and rail network, is very significant for the development of Rijeka transport route and the connection of the Rijeka port with the European countries in its hinterland. The connection with the corridor X and the Danube corridor VII, passing through Croatia, enable a better transport connection with the market in its hinterland.

7 HAZMAT – hazardous material

LITERATURE

[15] Project IMONODE, INTERREG IIIb, Project Leader: Hellenic Institute of Transport
[16] Stražičić, N.: “Pravci i dinamika robnih tokova u svijetu”, authorized lectures at the post-graduate studies, University “Vladimir Bakarić” in Rijeka, Rijeka, 1986
[17] UNCTAD Secretariat on the basis of OECD Main Economic Indicators, April, 2008;
Transport.
2010.
[19] Vidas, D.: “Particularly sensitive sea areas: the need for regional cooperation in the
Adriatic Sea”, The Fridtjof Nansen Institute, Oslo, Norway, 2006
[21] Quality Indicators for transport Systems - QUITs, European Commission Transport
RTD Programme.
[24] Weitz, R.: Strategic Oceanic choke points, are they still important? Working paper,
[25] Fletcher School of Oceanic Studies, Tufts University, December 12, 2000